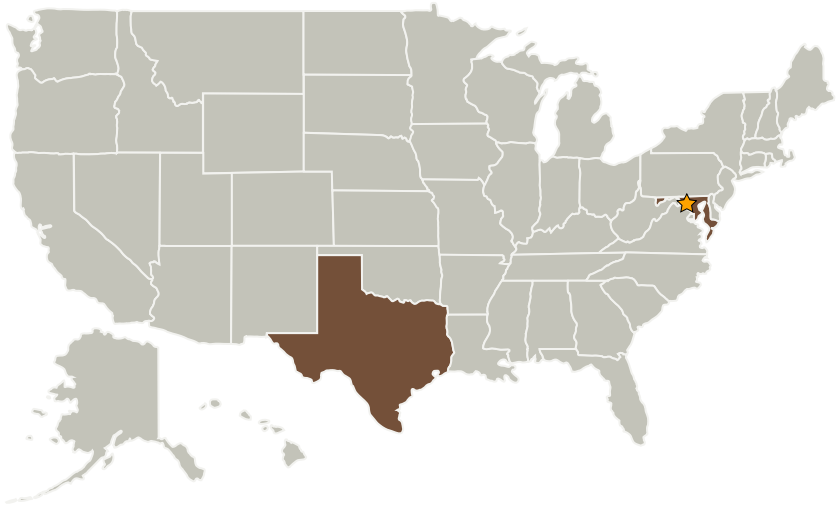
Low Cost, Light Weight Materials for Mirrors, Phase II

Completed Technology Project (2007 - 2009)

Project Introduction

During the phase I program Northwestern and APS, Inc., have manufactured several different materials systems that are lighter than Beryllium and stiffer than Aluminum. These high specific strength materials are also easily fabricated into larger shapes or even net shape processed. The mechanical (tensile and modulus) and thermal physical (CTE, thermal conductivity) property data for several systems never before manufactured, will be presented as well as fabricated coupons, mirrors, structures and other parts will be available for review. Several different diameter parts ranging for 3" to 11" have been demonstrated. These various extremely lightweight systems are easily machined, threaded/joined and have highly variable properties, including variations of thermal conductivity, and radiation hardening/protection capabilities. Phase II will continue with this success for mirrors an dlightweight structure.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
Advanced Powder Solutions	Supporting Organization	Industry	Cypress, Texas

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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Maryland	Texas

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX14 Thermal Management Systems
  - TX14.3 Thermal Protection Components and Systems
    - TX14.3.1 Thermal Protection Materials